

4:20-cv-05640-YGR

Epic Games, Inc., v. Apple Inc.

Expert Testimony of Professor Lorin Hitt

May 12, 2021



B.S. and M.S. in Electrical Engineering,
Brown University



Ph.D. in Management,
MIT Sloan School of Management



**Zhang Jindong Professor of Operations,
Information and Decisions,**
University of Pennsylvania, Wharton School

Research Focus:

Economics of information technology industry and related industries; emphasis on internet-based commerce

Data Used to Analyze Competitive Effects

App Store transaction data on all initial downloads and in-app purchases

Industry and third-party data on other transaction platforms

Monthly Epic data on Fortnite play time and spending for all accounts on all platforms



App Store game transactions:

App Store launch–FY2019

1,200%



Developer revenue from App Store game transactions:

2010–2018

2,600%



All U.S. consumer spending on digital game transactions:

2010–2018

448%



All App Store transactions:

Launch of IAP–FY2019

500%



Developer revenue from all App Store transactions:

Launch of IAP–FY2019

3,700%



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App Store Game Transactions and Developer Revenue Growth

App Store Game Transactions

Transactions (in millions)

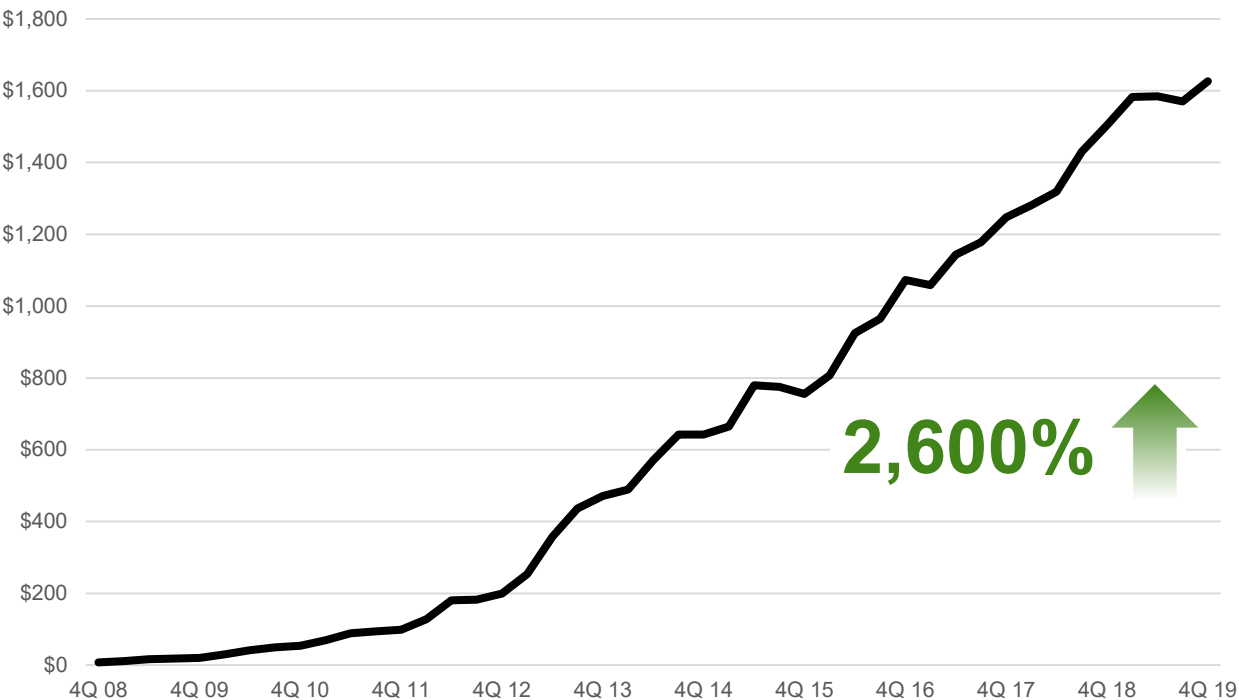


1,200% 

Figure 43
*App Store initial game downloads and in-app purchases
(July 10, 2008–September 30, 2019)*

App Store Game Developer Revenue

Developer revenue (in millions)



2,600% 

Figure 44
*Developer revenue from App Store initial game downloads and in-app
purchases (July 10, 2008–September 30, 2019)*

U.S. Consumer Spending on Digital Game Transactions

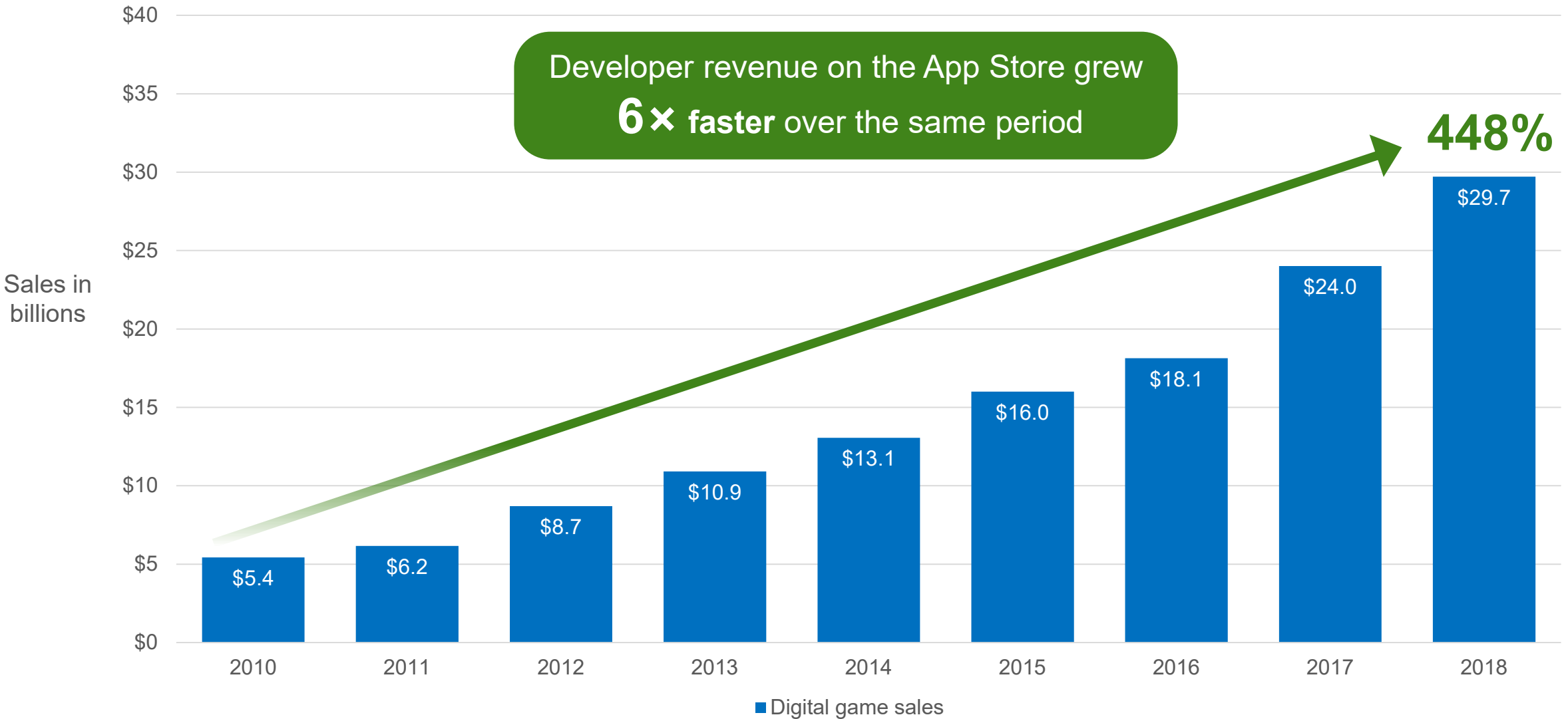


Figure 45
Amount spent by U.S. consumers on digital game transactions (2010–2018)

App Store All App Transaction and Developer Revenue Growth

App Store All App Transactions

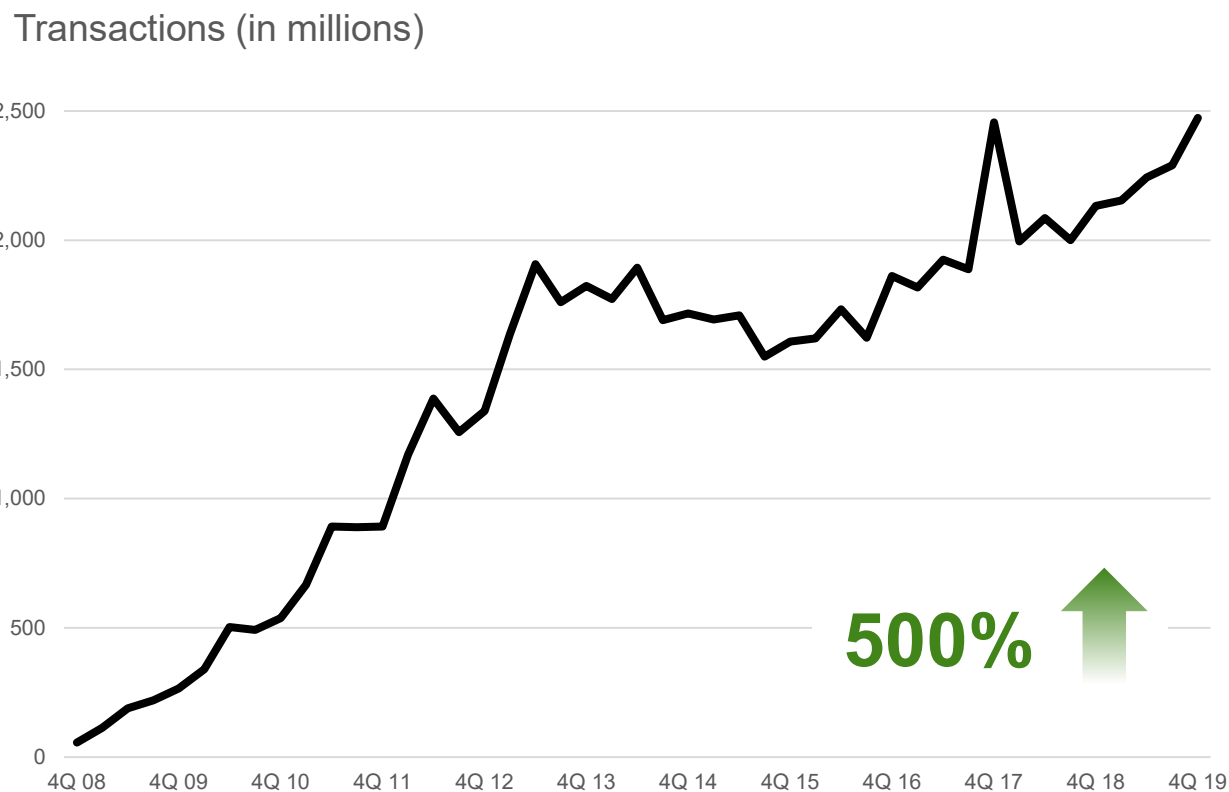


Figure 53
App Store initial downloads and in-app purchases
(July 10, 2008–September 30, 2019)

App Store All App Developer Revenue

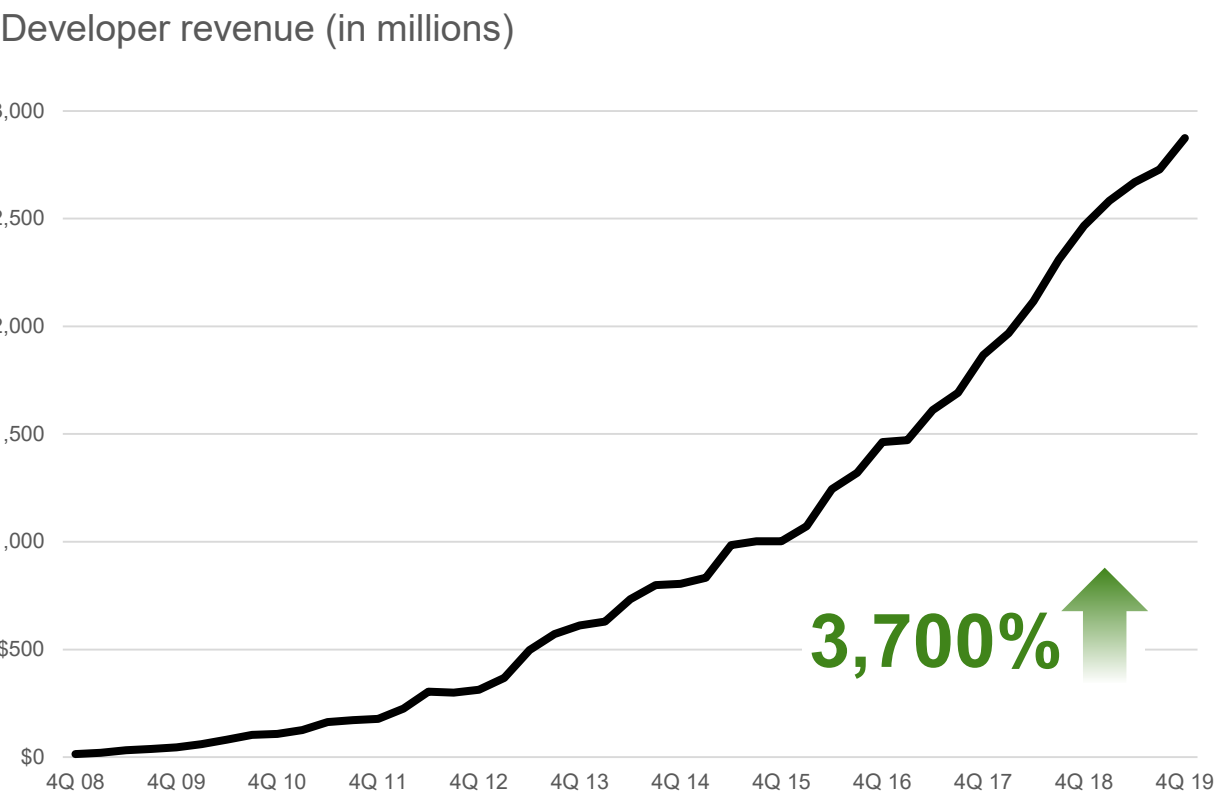


Figure 54
Developer revenue from App Store initial downloads and in-app purchases
(July 10, 2008–September 30, 2019)

App Store All App Transaction and Developer Revenue Growth

App Store All App Transactions

Transactions (in millions)

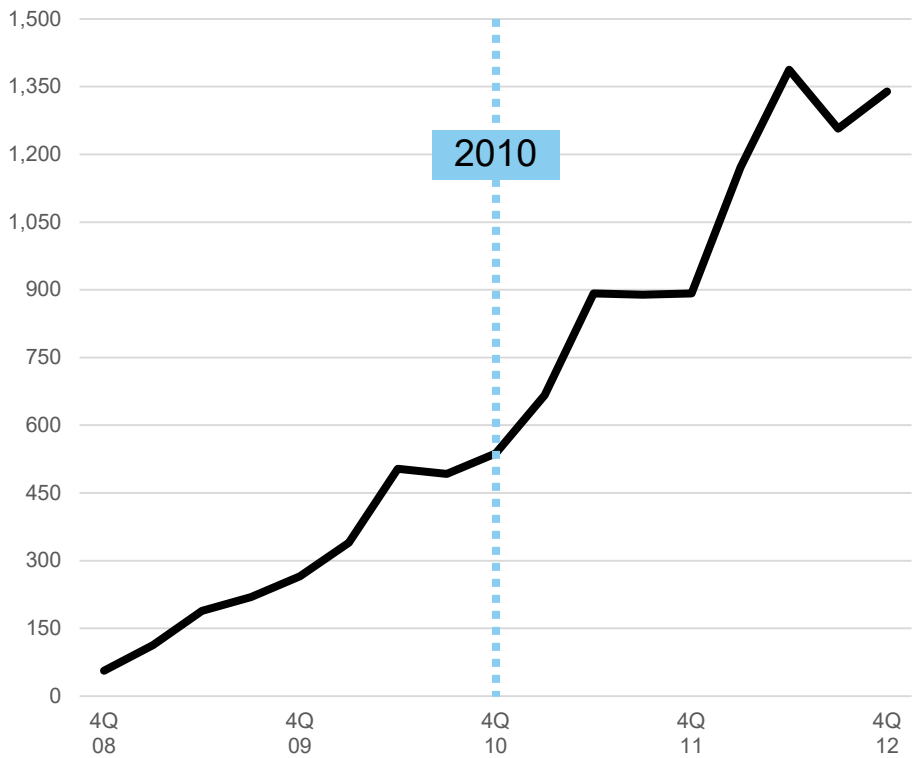


Figure 53
App Store initial downloads and in-app purchases
(July 10, 2008–September 30, 2012)

App Store All App Developer Revenue

Developer revenue (in millions)

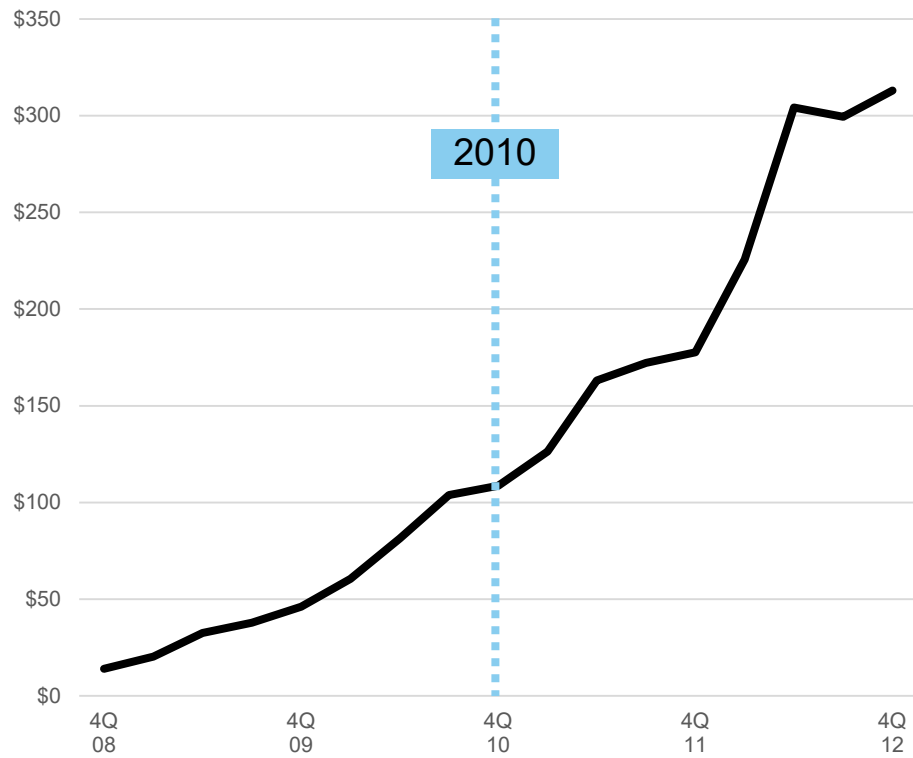


Figure 54
Developer revenue from App Store initial downloads and in-app purchases
(July 10, 2008–September 30, 2012)

Apple's commission rates

Competitors' commission rates

Epic's partners' commission rates

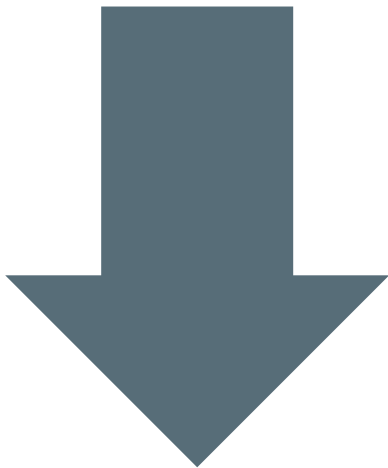
Apple's effective commission rates

App Store Commission Rate Decreases

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Original rate:

30%



New rate:

15%

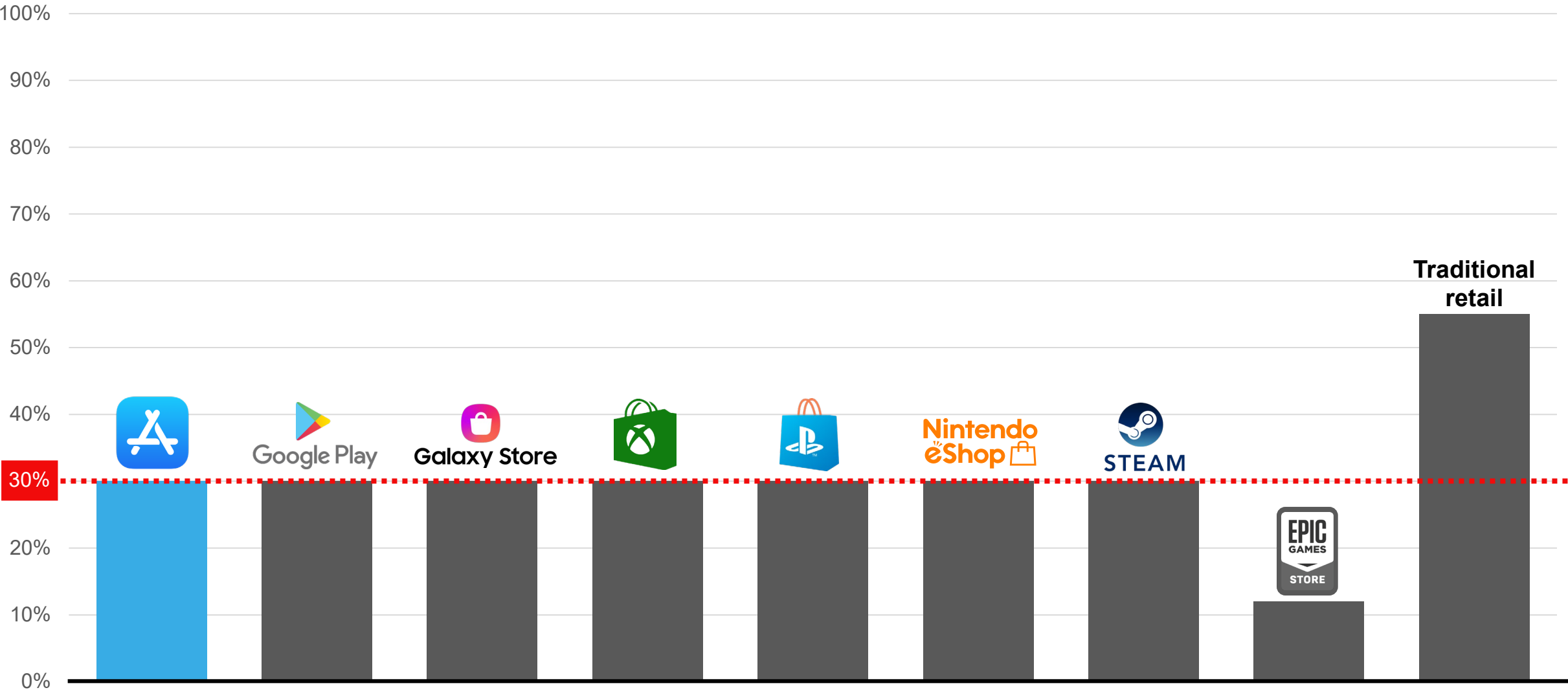


Affected Developers:

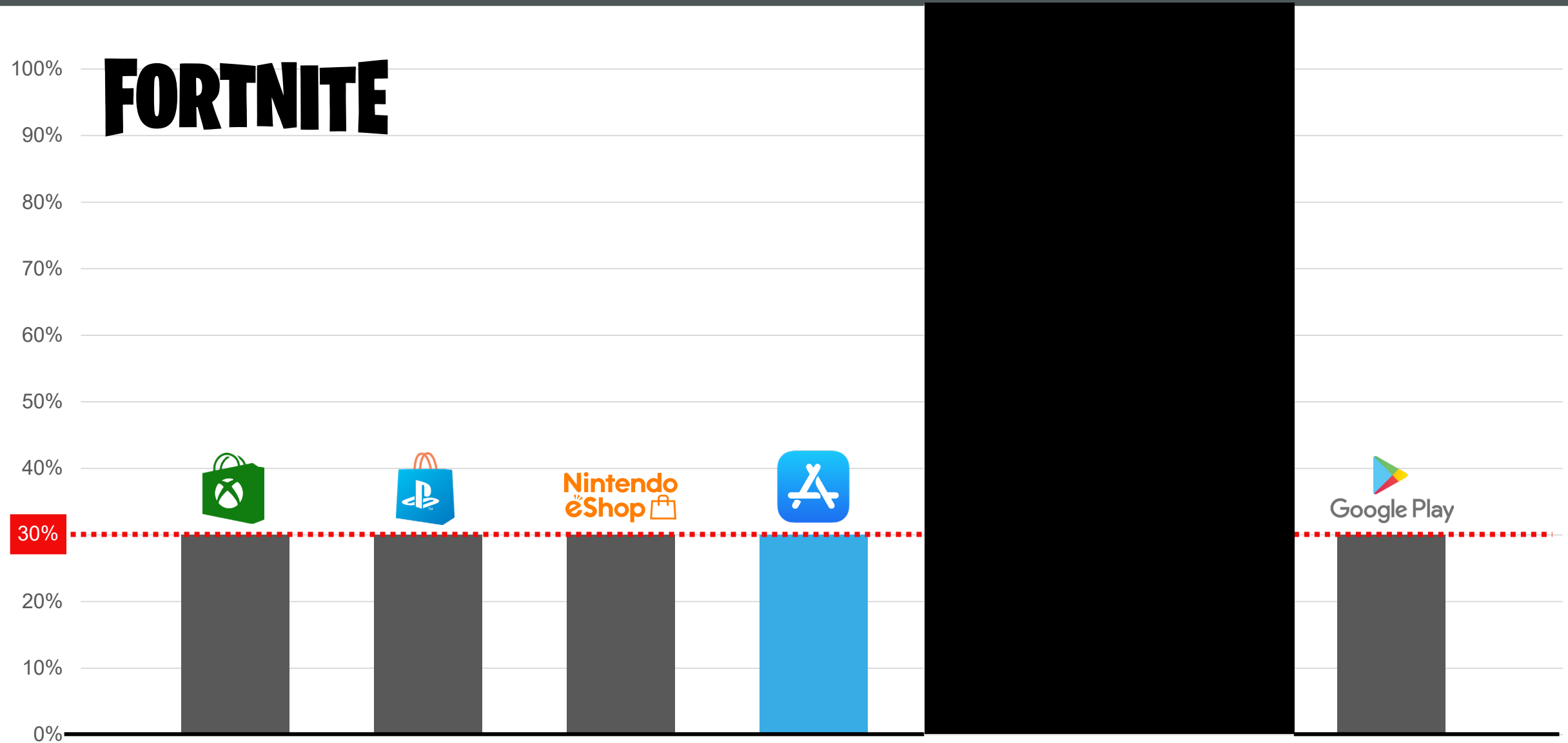
- 2016: Developers offering subscriptions
- 2016: Developers in Video Partner Program
- 2021: Small Business Developers—
earning < \$1M/year on the App Store

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Apple's Commission Rate Relative to Other Platforms



Commission Rates Epic Pays



Free App Store Transactions: Fiscal Year 2019

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91%

Free to download
games

76%

Totally free
games

83%

Totally free
apps

App Store Games by Monetization Type

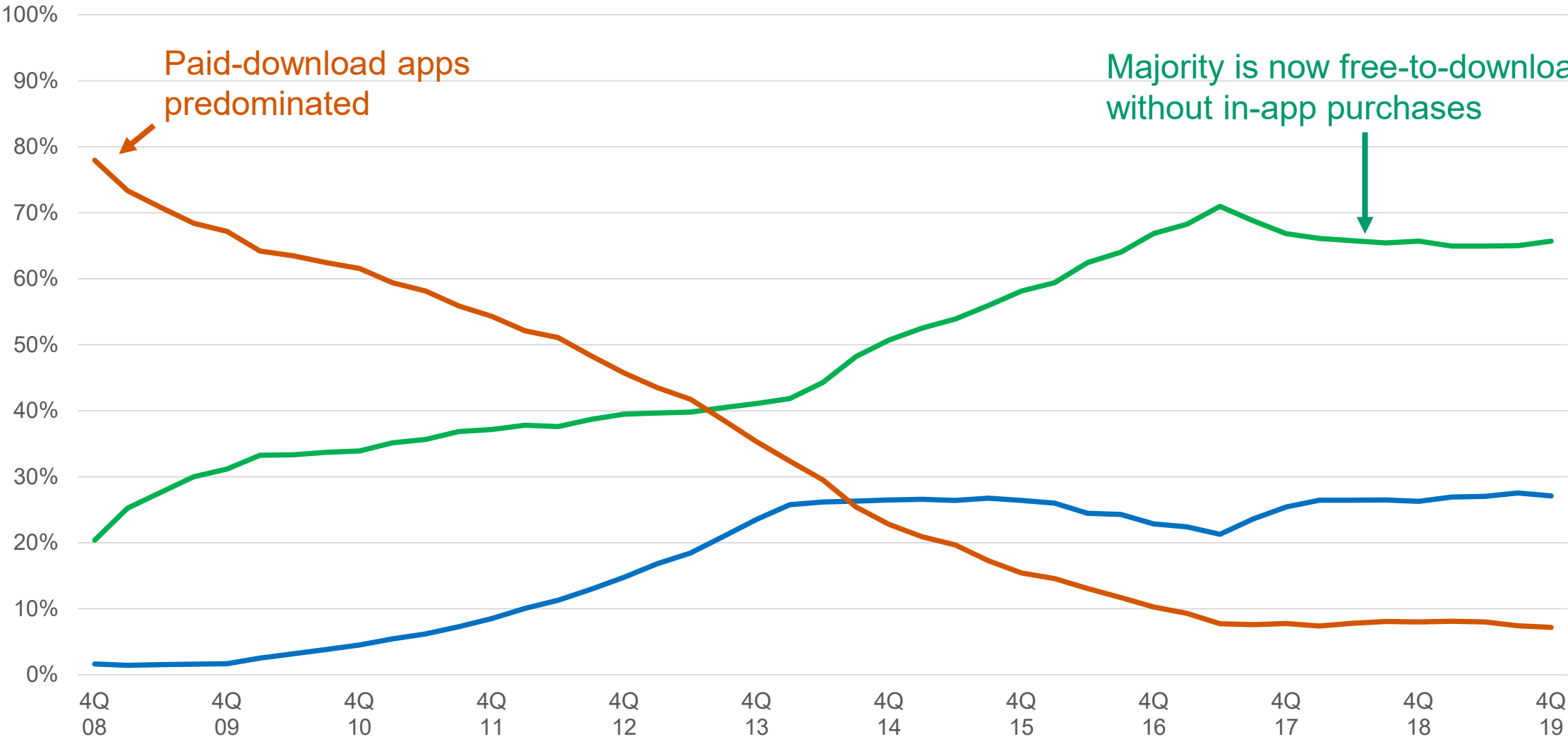


Figure 38
**Percent of App Store game apps by monetization type
(July 10, 2008–September 30, 2019)**

- Free-to-download game app with in-app purchase
- Free-to-download game app without in-app purchase
- Paid-download game

Average Apple Commission Rate on Game Downloads

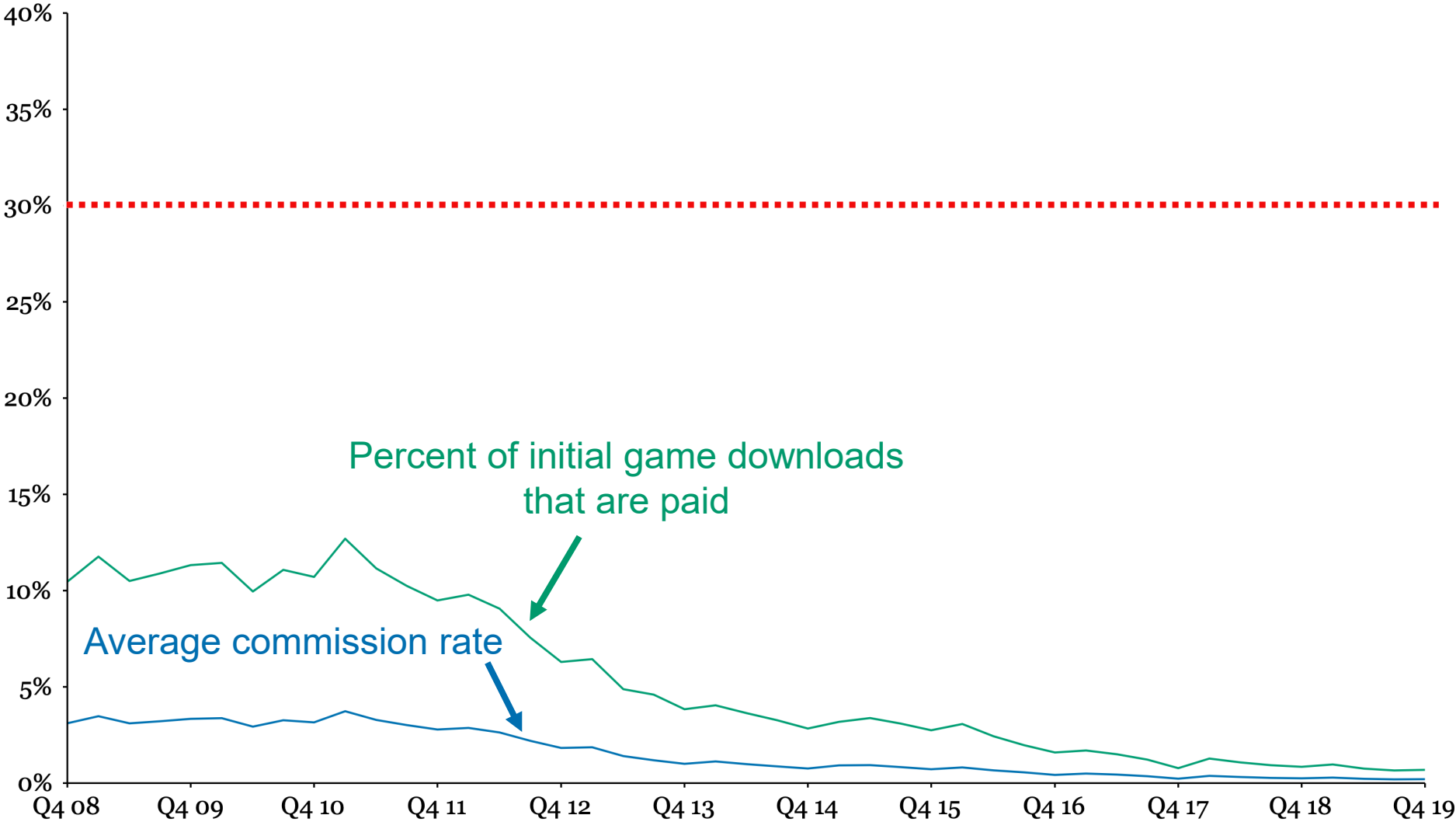


Figure 39
Average commission rate for App Store initial game downloads (July 10, 2008–September 30, 2019)

Commissions and Prices for App Store In-Game Purchases

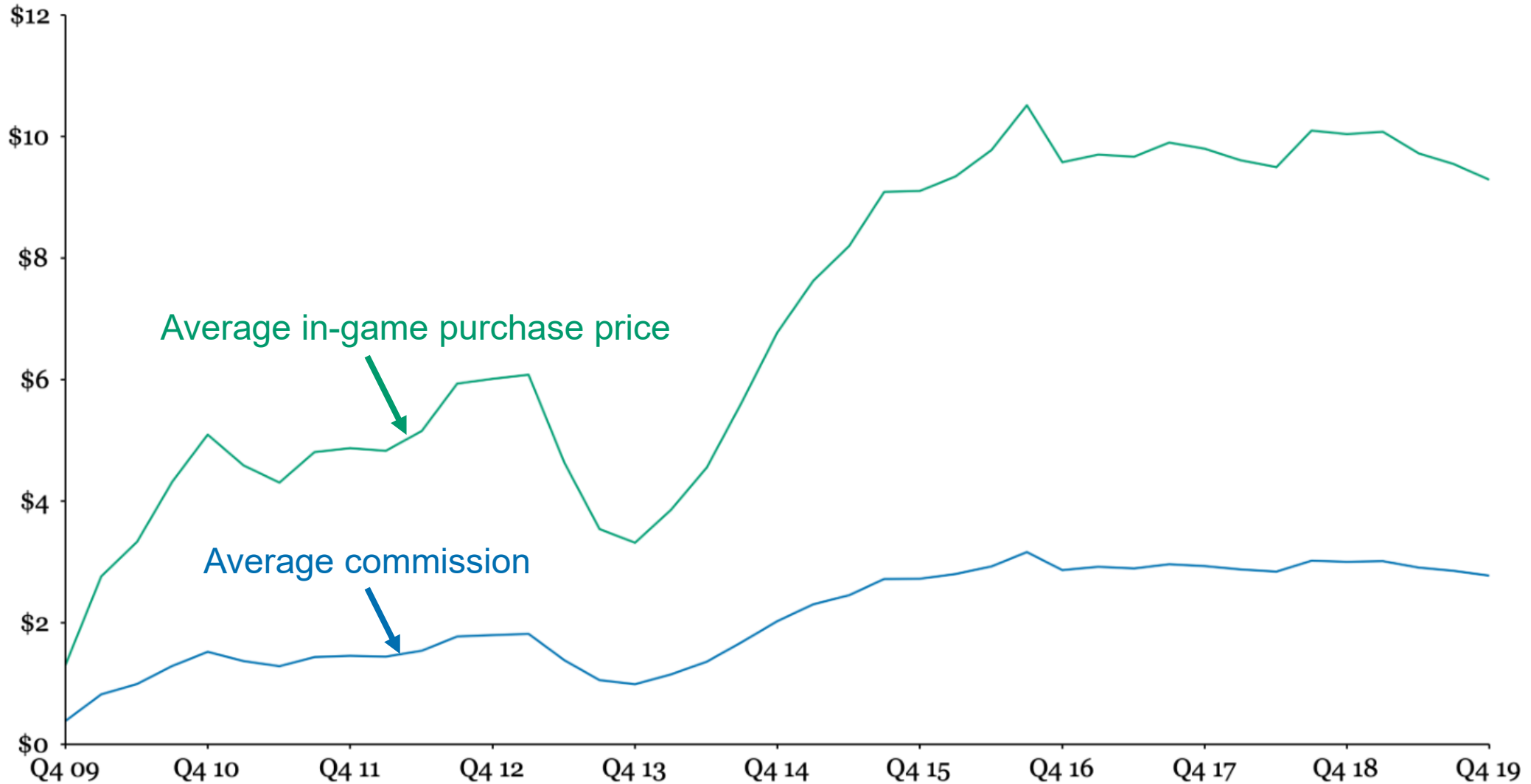


Figure 40

Average commission and prices from App Store in-game purchases (July 1, 2009–September 30, 2019)

Epic's Prices for App Store In-Game Purchases

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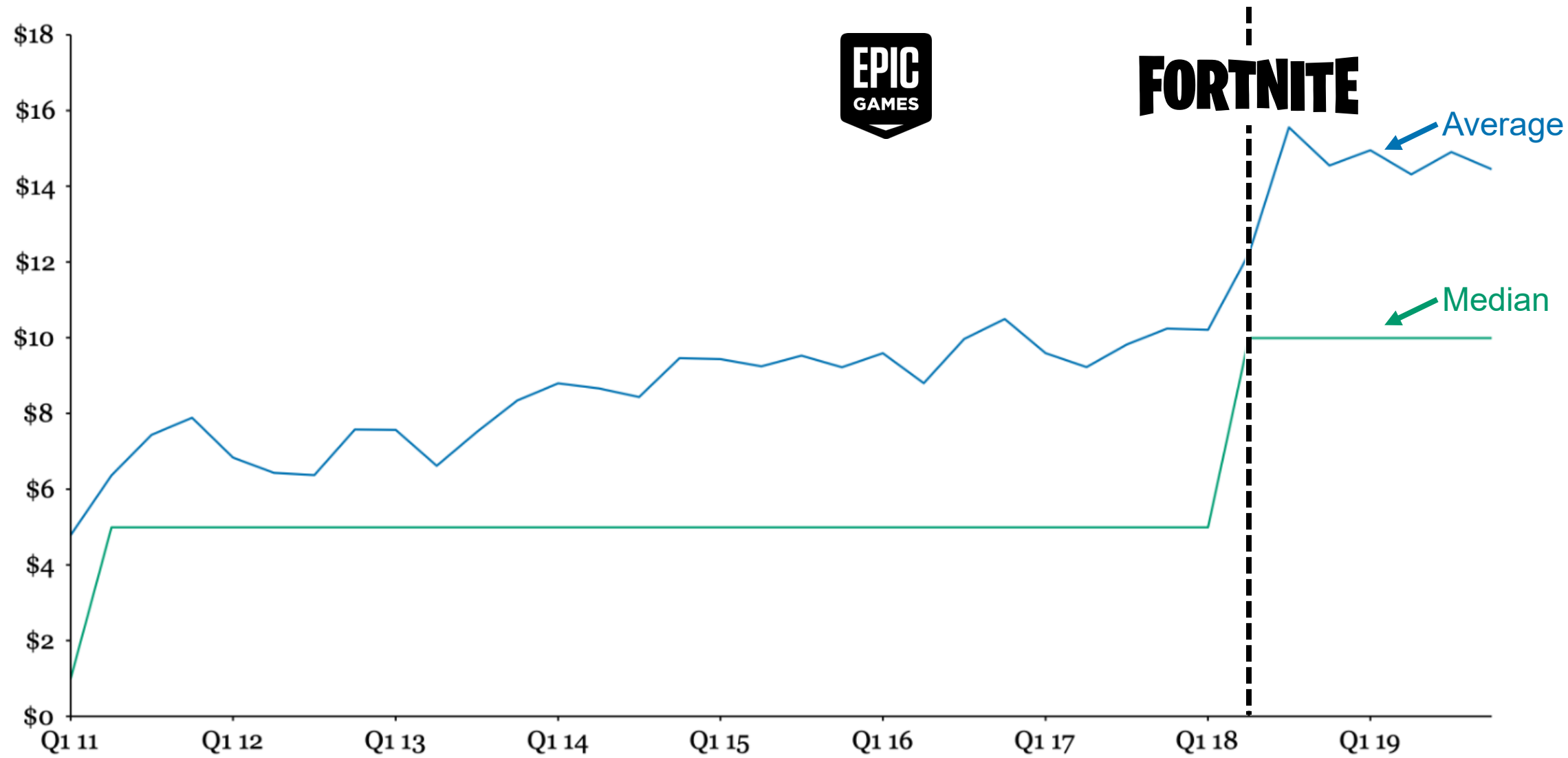
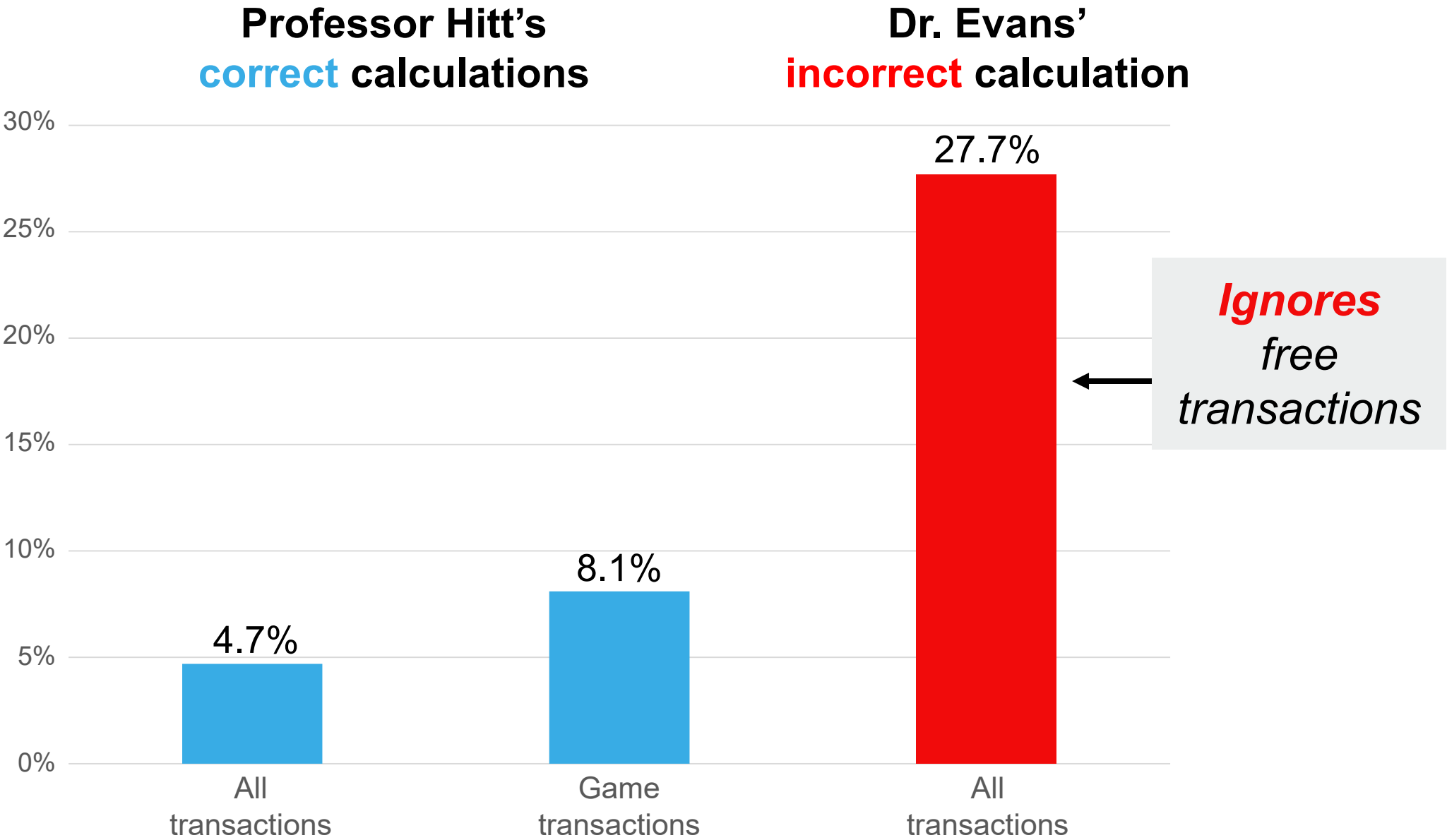
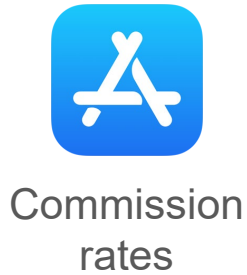


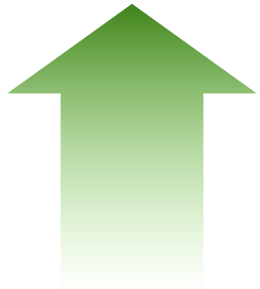
Figure 42
Average and median in-game purchase price for Epic apps through the App Store over time (December 21, 2010–September 30, 2019)

App Store Effective Commission Rate: 2019

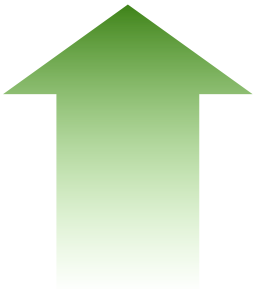


Measures of Quality Improvement of App Store Game Transactions

Quantitative



Volume of game transactions



Developers' ability to generate revenue

Qualitative



Expansion of available game types



iOS ecosystem innovations

Gaming Streaming Services

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Consumers and Developers Have Choices for Game Transactions



Developers Have Choices for Game Transactions

Developers

- Potential customers
- Tools
- Services
- Technology
- Cost

Game Transaction Platforms

Nintendo eShop



Google Play



PlayStation Store



STEAM



Origin™
Powered by EA



Consumers

Consumers Have Choices for Game Transactions

Developers

- Potential customers
- Tools
- Services
- Technology
- Cost

Game Transaction Platforms

Nintendo eShop



Google Play



PlayStation Store



STEAM



Origin™
Powered by EA



Consumers

- Many platforms
- Multi-homing even for the same game
- Consumers switch

Multi-Platform Fortnite User Accounts

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Platform	Total users (in millions)	Percent of users that are multi-platform users
iOS	115	35.9%
PlayStation 4	104	32.1%
PC/Mac	90	42.4%
Xbox One	53	33.0%
Android	31	53.7%
Nintendo Switch	31	34.7%
Google	8	54.4%

Purchasing Behavior of iOS Fortnite Users

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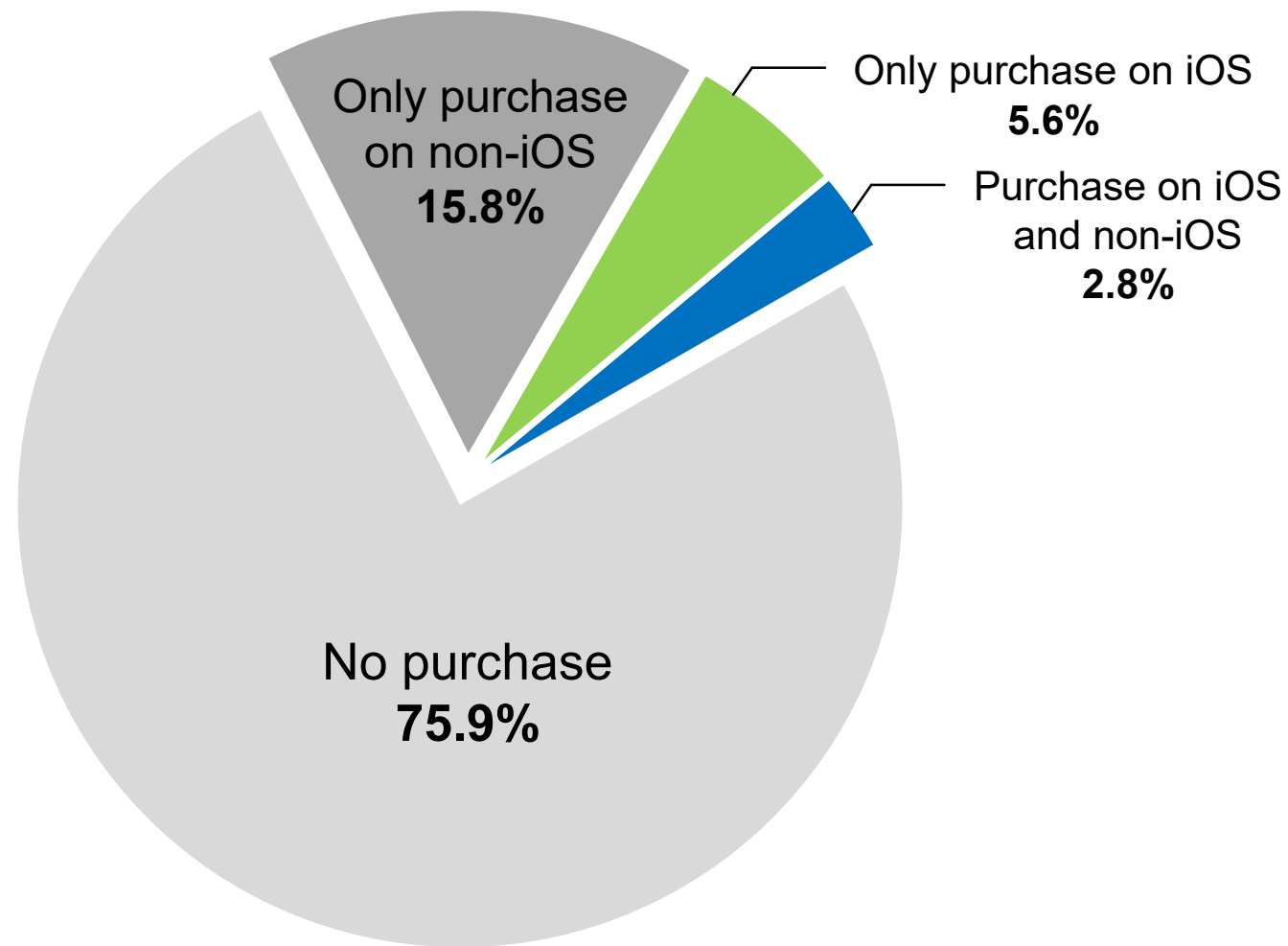


Figure 15

Purchasing behavior of worldwide user accounts that access Fortnite through iOS (January 2020–July 2020)

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Hours Played and Revenue for iOS Fortnite User Accounts

	Hours played (in millions)		Revenue (in millions)	
Platform	Hours	Percent	Revenue	Percent
iOS	2,752	10.2%	\$745	13.2%
Other platforms	24,219	89.8%	\$4,890	86.8%
Total	26,971	100.0%	\$5,635	100.0%

Figure 14
Percent of worldwide time played and revenue by user accounts that accessed Fortnite through iOS (March 2018–July 2020)

Empirical Analyses Showing Consumer Substitution

- 1 Analysis of switching after the Hotfix
- 2 Introduction of Nintendo Switch
- 3 Console and PC gaming companion app analysis
- 4 Spotify subscriptions
- 5 Netflix subscriptions

Switching After the Hotfix

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- Expected iOS spending that moved to other platforms:
 - 22%–51% for all iOS users
 - 22%–38% for iOS-only users

81%–88% of Fortnite spending by iOS users was retained

Consumers Substitute Spending Away From App Store

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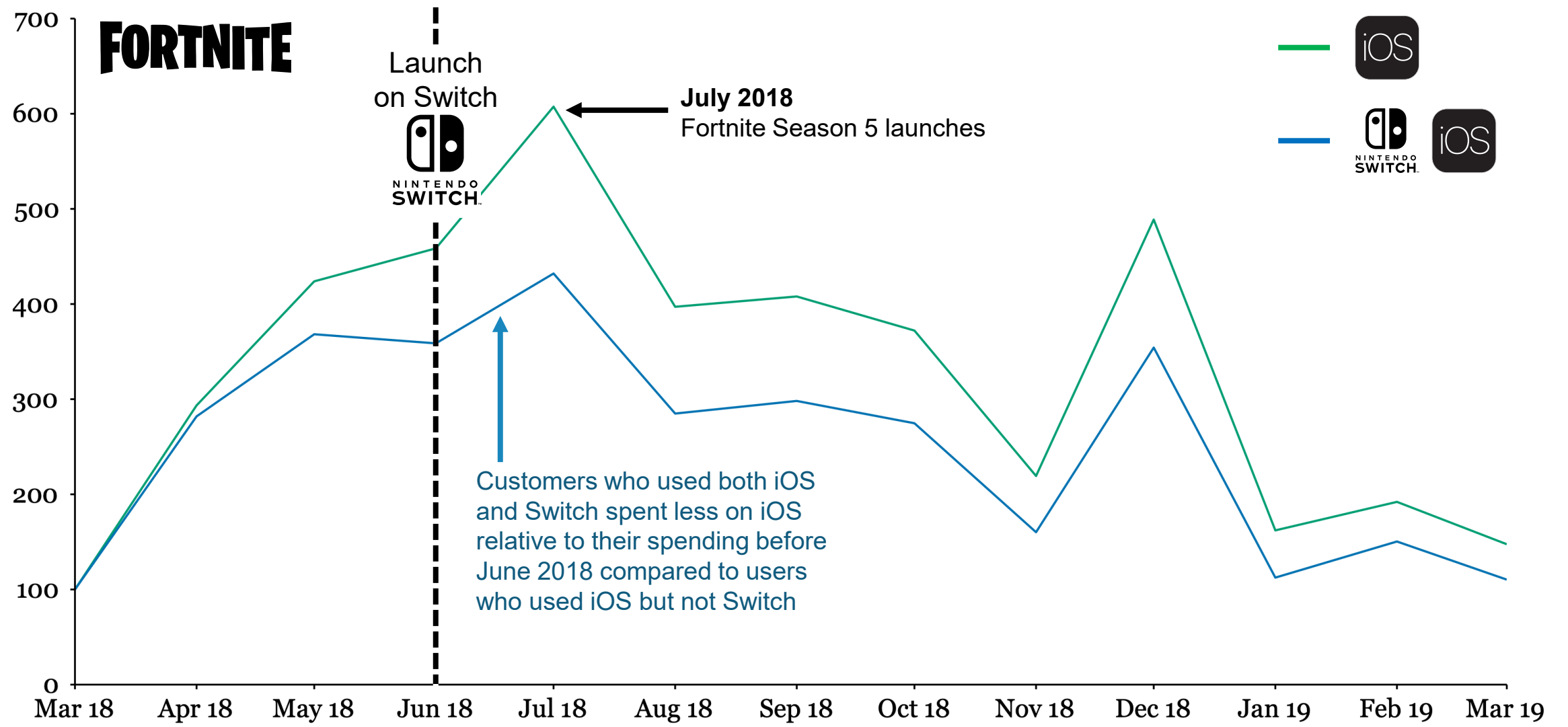


Figure 18
Worldwide Fortnite iOS revenue from user accounts that accessed Fortnite on an iOS device in June 2018 (March 2018–March 2019)

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Console and PC Gamers Substitute Spending Away From App Store

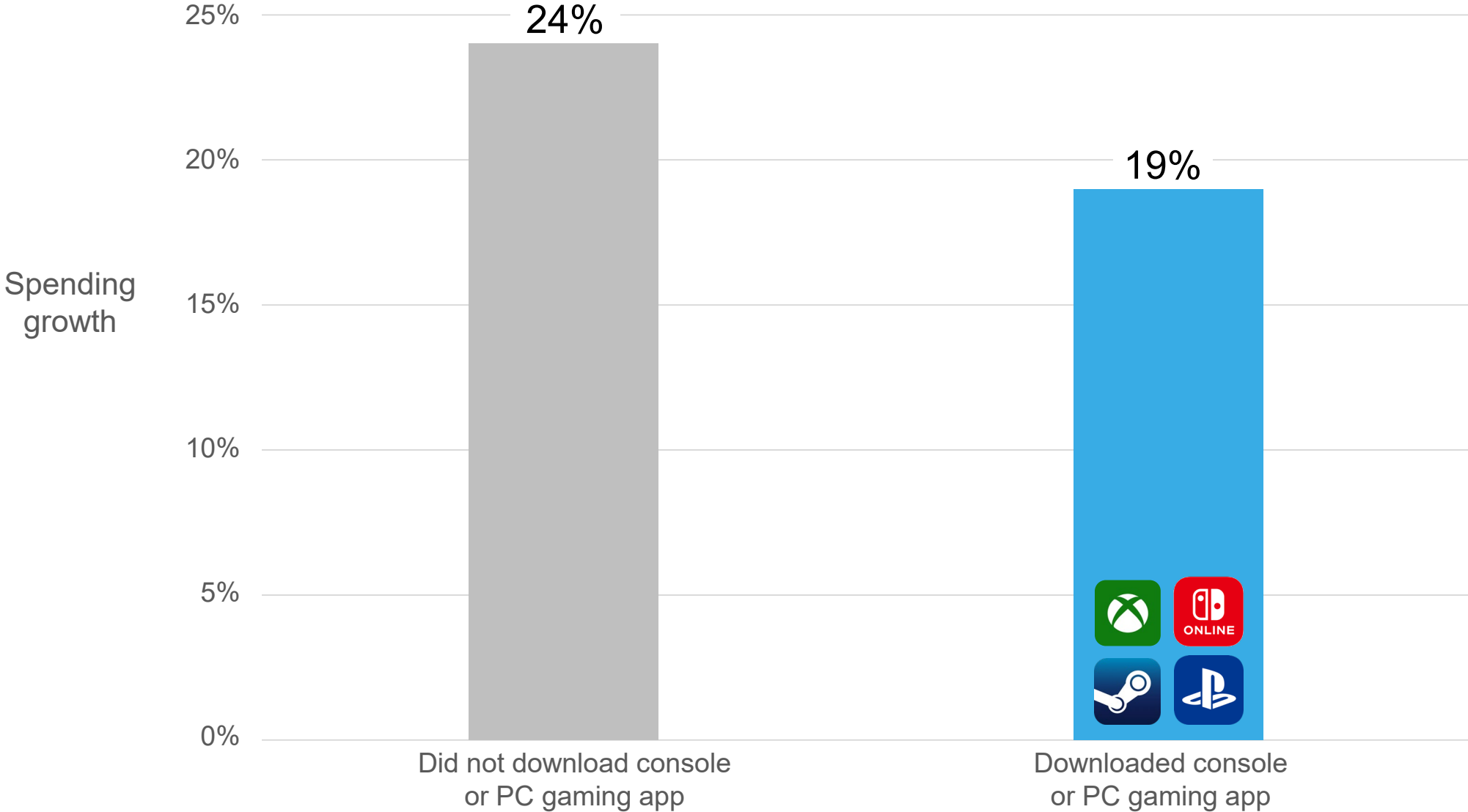


Figure 16
Comparison of growth rates in iOS game spending between 2017 and 2019

Portability of Top Apps in the App Store

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App Category	Offer single sign on	Offer full or partial portability
All Apps		
Top 25 by revenue	96%	92%
Top 25 by downloads	80%	84%
Game Apps		
Top 25 by revenue	92%	84%
Top 25 by downloads	32%	32%

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